REMARKS

Favorable reconsideration of this application, in light of the following discussion and in view of the present amendment, is respectfully requested.

Claims 1-27 are pending and claims 1-11 are under consideration in the present application. Claims 12-27 are withdrawn and claims 1, 6 and 8-11 are amended by the present amendment.

I.   Rejection Under 35 USC § 102

Claims 1, 2, 8 and 10 were rejected under 35 USC § 102(e) as anticipated by U.S. Patent number 5, 944, 792 to Yamato et al. (herein "Yamato"). This rejection is respectfully traversed.

Amended independent claim 1 recites "determining a deadline reading and writing processing for the storage medium, based on a change of a transfer rate of data which is actually received," support for which is found in the originally filed specification at least at page 37, lines 14-22. Independent claims 8 and 10 are amended to include similar features.

In a non-limiting example, Figure 11 shows that when an isochronous transfer is performed, the data transfer rate changes with time depending on the ratio of inserted dummy packets. The scheduling unit 41 dynamically determines the deadline of the write/read processes depending on the transfer rate at each point in time, and sets the schedule of performing write/read processes in order from the process having the earliest deadline (see the specification at page 37, lines 3-10).

As an advantage, the deadline is determined based on the actual transfer rate, and flexible scheduling is performed based on the deadline. Therefore, the scheduling is performed based on the transfer rate of each channel even when statistically multiplexed picture data at a variable rate is recorded/read in real time, thereby recording/reading data through a larger number of channels (see the specification at page 37, lines 14-22).

In contrast, Yamato at col. 17, lines 15-24 discusses calculating a deadline time of a reading request T_N based on a file transfer rate. However, the file transfer rate discussed in Yamato merely refers to a predetermined transfer rate stored in a transfer rate table 72 (see Yamato at col. 17, lines 27-45). Because the transfer rate of Yamato is predetermined and retrieved from a transfer rate table 72, Yamato is different from amended independent claims 1, 8 and 10, which recite "determining a deadline...based on a change of a transfer rate of data which is actually received."

Accordingly, it is respectfully submitted independent claims 1, 8 and 10 and each of the claims depending therefrom patentably distinguish over Yamato.

II.   Rejection under 35 USC § 103

Claims 6, 7, 9 and 11 were rejected under 35 USC § 103(a) as unpatentable over U.S. Patent number 6, 263, 411 B1 to Kamel et al. (herein "Kamel") and U.S. Patent number 5, 530,871 to Abe. This rejection is respectfully traversed.

As acknowledged in the outstanding Office Action in item 7 at page 4, "Kamel does not teach that the write area memory buffer pool 28 is an area of disk 30."

Further, although item 7 of the outstanding Office Action asserts "Abe teaches that a disk buffer pool which is an I/O buffer area for disk secured on a main storage device," it is respectfully submitted Abe at col. 1, lines 16-24 only discusses a main memory implemented as a semiconductor memory chip, but does not discuss or suggest "determining a write position of data on the disk type storage medium," as recited in amended independent claims 6, 9 and 11.

Rather, Abe at col. 1, lines 16-24 discusses "a disk buffer pool which is an I/O buffer area for disk secured on a main storage device." Abe at col. 3, lines 45-52 and col. 4, lines 4-10 discusses a user program group 1 using the buffer table 7 (stored in the main storage device 3) which stores the location and the number of buffers in active use. This buffer table 7 in the main storage device 3 is used to buffer access to an external storage device 6. Such a main storage device 3 is typically a semiconductor memory, but is not a disk, as in amended independent claims 6, 9 and 11.

Accordingly, it is respectfully submitted independent claims 6, 9, and 11 and each of the claims depending therefrom patentably distinguish over Kamel and Abe.

Moreover, it is respectfully submitted Kamel teaches away from Abe because Kamel discusses real-time access to video data which "guarantees continuous video playback" (see Kamel at col. 3, lines 59-62), while Abe only discusses "an asynchronous input and output (I/O) control system." Because the scheduling methods and requirements for real-time video playback systems are quite different from those for asynchronous input and output, it is respectfully submitted Kamel teaches away from Abe.

Accordingly, it is respectfully submitted Abe and Kamel cannot be combined in the manner suggested in the outstanding Office Action.

Further, it is respectfully submitted Abe also teaches away from the present application because the present application discusses an isochronous system, while Abe only discusses an asynchronous input and output system, as discussed above.

In addition, although item 7 of the outstanding Office Action asserts that Abe discusses a disk buffer pool as an area within a disk, it is respectfully submitted Abe at col. 1, lines 31-40 only discusses a buffer which is external to a disk, in contrast to amended claim 6.

Amended independent claim 6 recites "determining a write position of data on the disk type storage medium," support for which is found in the originally filed specification at least at page 21, lines 7-14. As an advantage, even when a simultaneous write request for picture data through a plurality of channels is issued, the data of the channels is sequentially and collectively written, thereby considerably reducing the wait time for seek or turn when data is to be written (see the specification at page 21, lines 15-21).

In contrast, Abe at col. 1, lines 31-40 only discusses that "the data transferred from the user program together with the write instructions is held on the disk buffer pool for a certain period of time. Therefore, if a read instruction for the data is issued from another user program during the holding period, it is possible to transfer the data to the user program without carrying out the read processing from a disk, so that it has an effect that there is a possibility of improving the throughput of the read processing."

Therefore, Abe at col. 1, lines 31-40 only discusses a disk buffer pool which is part of a main storage device (which is typically a semiconductor memory, and as shown in Figure 1 of Abe, the main storage device 3 is not part of the external storage device 6), which is different from a "disk type storage medium" as in independent claims 6, 9 and 11.

Accordingly, it is respectfully submitted independent claims 6, 9 and 11 and each of the claims depending therefrom further patentably distinguish over Kamel and Abe for this additional reason.

III. Entry of the Amendment

Entry of this Amendment and Request for Reconsideration under Rule 1.116 is respectfully requested at least because the present amendment places the claims in better form for appeal. For example, the amendment to independent claim 1 removes the phrase "and/or," in light of the comments noted in the outstanding Office Action.

IV. Specification and Drawings

Further, the specification and FIGS. 5, 19, 39, 40, 55, 56 and 58 are amended only to correct minor informalities. It is believed no new matter is added.

V. Conclusion

Consequently, in light of the above discussion and in view of the present amendment, this application is believed to be in condition for allowance and an early and favorable action to that effect is respectfully requested.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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Date: __May 21, 2004__   By: _____

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